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(54) Title of the invention: Monitor event communication system

(57) Abstract:

Problem to be solved: To provide a system for monitoring the generation of an event on a server, and for properly notifying the generation of the event to a server manager or the like in a server/server system existing on a network system.

Solution: This system is constituted of a monitor information registering means for registering monitor information for designating an event to be monitored and the destination of information to be notified when the event is generated in a server processing operation and its state, a monitoring means for monitoring the system based on the monitor information registered by the monitor information registering means and for detecting the generation of the event, and a notifying

means for notifying the information of the monitor event detected by the monitoring means based on the destination of notification information. When a mail communication system is used as a notifying means, detail information related with the notified information is transmitted as the attached file of a mail. Also, the notifying means confirms whether or not a client at the destination of notification is connected with the client communication, and it decides a notified configuration using the first notifying means and the second notifying means based on the confirmed connected state.

[Claims]

[Claim 1] A monitor event information system formed in a server of a system of a client/server connected in a network, including a monitor intelligence which specifies an event which should be supervised about processing operation and a state of a server, a monitor information registering means which registers report destination information notified at the time of an event happened, a monitor means which supervises a system based on monitor intelligence registered by the mentioned above monitor information registering means, and detects an event happened, a reporting means which notifies information on a monitor event which the mentioned above monitor means detected based on the mentioned above report destination information.

[Claim 2] The monitor event information system according to claim 1 characterized by that the mentioned above reporting means notifies client communication used in the mentioned above client/server system using a mail communication system with which communication is made independently.

[Claim 3] The monitor event information system according to claim 2 characterized by transmitting detailed information relevant to the notification information as an attached file of e-mail when performing a notice using a mail communication system.

[Claim 4] The monitor event information system according to claim 1 constituting by the second reporting means that notifies that a monitor event is the mentioned above client communications system using a mail communication system with which communication is made independently, the first reporting means by which the mentioned above reporting means notifies that a monitor event is used by client communication in the mentioned above client/server system.

[Claim 5] The monitor event information system according to claim 4 constituting so that a notice mode using the mentioned above first reporting means and the mentioned above second reporting means may be determined based on a checked this connected state, the mentioned above reporting means checks whether a client of a report destination is connected to the mentioned above client communication.

[Claim 6] The monitor event information system according to claim 1 characterized by a reboot of service being performed by demand of a client when an event notified to a client by client communication used in the mentioned above client/server system is a service stop.

[Claim 7] A recording medium on which recorded a program which operates a monitor event information system formed in a server of a system of a client/server connected in a network and in which computer reading is possible, characterized by including a monitor intelligence which specifies an event which should be supervised about processing operation and a state of a server, a monitor information registering means which registers report destination information notified at the time of an event happened, a monitor means which supervises a system based on monitor intelligence registered by the mentioned above monitor information registering means, and detects an event happened, a reporting means which notifies information on a monitor event which the mentioned above monitor means detected based on the mentioned above report destination information.

[Detailed description of the invention]

[0001] [Field of the invention] In the client/server system which exists on a network system, it is related with the field that monitors and manages the event happened on a server.

[0002] [Description of the prior art] When a server user contacts a server manager by telephone and the like, the server manager can know server operation again generating of the event which generated the server situation on the server by supervising the message from a server.

[0003] [Problems to be solved by the invention] Although the correspondent processing to the server event will be taken by notifying a server user of the generated event, the work of the server manager by this serves as big load.

[0004] Event (an abnormal termination, a service stop, an event) as which the system or the various monitor application which displays a server situation detected this, it is because a message or a log at the time of generating, and the like is outputted only on an applicable server system. The following problems are derived along with these too.

[0005] The fixed administration terminal in which the server system administrator was decided to be a server, it is necessary to supervise an application and the like. However, the server manager cannot necessarily supervise an event happened at the terminal that setting out which is in the neighborhood and can be specified freely is possible for carrying out server monitor.

[0006] There is no means which responds to the free monitor of a client or management request which can be started suddenly. About the generating monitor of the event generated daily, a server manager will be troubled one by one with the connection to a server manager from a client, server setting out for it, the analysis of an event happened, a notice, transmission of a log file and the like.

[0007] Thus, the thing for which the monitor which a server manager and a client require cannot be set up freely, that connection with a server manager and a client and the time for a notice occur, when the unnecessary monitor time by the server manager in server operation occurs, there is a problem in respect of efficiency for a server manager and both of a client.

[0008] In order that this invention may solve the mentioned above problem, server monitor event information is grasped at the time of an event happened, it aims at making it possible to be able to register freely the monitor of this event happened by notifying a client or a server manager by net communication and the recognized client or a server manager.

[0009] [Means for solving the problem] In order to solve the mentioned above problem, a monitor event information system of this invention includes monitor intelligence which specifies an event which is a monitor event information system formed in a server of a system of a client/server connected in a network, and should be supervised about processing operation and a state of a system, a monitor information registering means which registers report destination information notified at the time of an event happened, a monitor means which supervises a system based on monitor intelligence registered by the mentioned above monitor information registering means, and detects an event happened, and a reporting means which notifies information on a monitor event which the mentioned above monitor means detected based on the mentioned above report destination information were established and constituted.

[0010] The mentioned above reporting means can notify to a server manager that a monitor event is client communication using a network connected to the mentioned above client/server system by notifying using an independent mail transmission system at a terminal and the like which became independent of a client. The above mentioned «client communication» is communication made by a means of communication for performing original communication performed between a client and a server by a client/server system.

[0011] When performing a notice using transmitting mail, it becomes possible by transmitting detailed information relevant to the notification information as attached materials of e-mail to transmit detailed information efficiently.

[0012] The first reporting means which the mentioned above reporting means notifies that a monitor event is by client communication using a network connected to the mentioned above client/server system, for the mentioned above client communication, it is desirable to constitute by the second reporting means that notifies a monitor event using a mail communication system with which communication is made independently. With such composition, the mentioned above reporting means checks whether a client of a report destination is connected to the mentioned above client communication, if it constitutes so that a notice mode using the mentioned above first reporting means and the mentioned above second reporting means may be determined based on a checked this connected state, for example, if connection is made by client communication, client communication notifies an event and connection is not made by client communication, as mail communication notifies an event, the certainty of performing a notice of an event to a server manager increases. Certainty may be improved, even if connection is made to client communication, as mail communication is performed, in order to reduce traffic conversely, it may not be made not to perform mail communication, and it may be made to set this up by a server manager and the like

[0013] When an event notified to a client by client communication using a network connected to the mentioned above client/server system is a service stop, it is desirable to be constituted, so that a reboot of service may be performed by demand of a client.

[0014] [Embodiment of the invention] In this invention, the abnormal termination situation of application, the stop state of service, and the like generating in the server of a network system are supervised and it is a net information system which notifies the client or administrator who had the detected contents specified of monitor event-happened information by LAN or the method by which the Internet connection was carried out.

[0015] Next, the example of this invention is described. Drawing 1 and drawing 2 explain a whole flow and function first.

[0016] Drawing 1 is a functional block diagram which shows the flow of the whole monitor event-happened net information system according to the example of this invention.

[0017] It is connected to networks (graphic display abbreviation), such as LAN, and information is usually transmitted by both the client 11 and the server 10 among a drawing and received using this network (client communication).

[0018] In order to perform transmitting mail to the server 10, connection is made also to the networks 13, such as the Internet or in-company intranet, it is also possible to transmit information by performing transmitting mail to clients 12 other than client 11 to which the mentioned above client communication is performed by the user side server 14.

[0019] There are the mailer 121 and the preserving means 122 of notice mail in this client 12, and it has the function to perform e-mail reception by the user side server 14. A built-in end may be sufficient as this client 12, and E-mail and the like may be the personal digital assistants which are ability ready for receiving.

[0020] The monitor event registering part 111 in the client 11 is a client side configuration device, performs monitor event registration to the register 113 of client monitor configuration, and requests event monitor and report destination registration from the server side. A server user chooses and registers with the client environment server side out of what exists as a select list. The register 113 is constituted using the registry file of the client 11, as shown, for example in drawing 8.

[0021] The event registering part 101 in the server 10 registers into the register 104 the monitor event and report destination which a client requires. As shown on drawing 6 and drawing 7, in this embodiment, it is constituted using the registry file of the server 10.

[0022] The event monitoring part 102 will activate a monitoring function, namely, a service monitoring function, an application monitor function, and an event log monitoring function, if a client requires monitor and registration is made.

[0023] The notice content preserving part 105 saves the message corresponding to occurring events, such as an application error, a notice of a service stop, and a notice of an event log, as shown on drawing 10. About these concrete examples, it will state in the «notice acknowledgement function» of the explanation portions of «each details of a function» mentioned below.

[0024] By the above, an applicable monitoring function is a system or will be in the registration event-happened monitor from monitor application or a waiting state. At the step S201 of drawing 20, step S211 of drawing 21, and Step S221 of drawing 22 which are mentioned later, it will be in the generating monitor or the state of waiting of each monitor event, and generating of the monitor event registered into the register 104 will be supervised.

[0025] If the dissolution of the mentioned above event waiting, namely, a monitor event, occurs, control will cross the event informing part 103 to the notice of a server event. This passes control to client communication or a transmitting mail function according to the report destination information registered in order to transmit the notice of an event happened. Thus, notification information transmission is performed towards the mailer 121 in monitor event receiving part 112 and the client 2 in the client 1.

[0026] Although not represented, the program for performing operation of these servers and a client may be constituted so that what was recorded on the recording medium may be installed in a server and a client.

[0027] In drawing 2 *(1) - (8)* show the composition of each function of this invention. Drawing 2 *(1) - (6)* are the server side functions, and drawing 2 *(7), (8)* are client side functions, and dealing in the outline with following.

[0028] «The service monitor / starting» of drawing 2 *(1)* performs the end monitor of the service which is working by the server. «Service» here is a program which resides in a system permanently in order to move a database and the like, and is always operating. Starting is rebooting the ended service with the directions from a client. When service of a monitor object stops, that is notified to the specified client or mail, and it makes it possible to be able to reboot the stopped service from a current message box as a current function.

[0029] *(2)* An «application monitor» supervises the abnormal termination of the application which is working by the server. This application rises if needed by the demand of a client, and the like, and is a program which operates.

[0030] *(3)* «Event log monitor» supervises an event log and detect that the record was added to the event log.

[0031] *(4)* «Client communication» performs communication between the server clients which notify the abnormalities and event log which were detected by the server to a client, and receive reboot directions of the service from a client.

[0032] *(5)* «Transmitting mail» transmits the abnormalities detected by the server to a client.

[0033] *(6)* «Configuration» performs setting out of operating environment, such as a client which performs the event and a notice which supervises. Setting out to a server function is performed and the candidate for the notice of a monitor event is saved at a register.

[0034] «Server communication» of drawing 2 *(7)* performs communication between server clients which receives the notice transmitted from the server and carries out the view as popup of the contents.

[0035] *(8)* «Configuration» performs setting out of operating environment, such as an application which performs the server which receives a notice, and a log display. Setting out to a client function is performed and the candidate for the notice of a monitor event is saved at a register. Selection of the service which the list of the service specified on the present server is displayed at the time of selection, and makes service of a monitor object a monitor object is enabled.

[0036] Below, the details of each function are explained in order of (1) registration, (2) monitor, (3) server client communication, and (4) notice check. (In addition, drawing 11 - drawing 18 support the mentioned above drawing 2 *(1)* – *(8)*). The function to set up and register the environment of the monitor object of this system about (1) registration is explained first.

[0037] The things used as a monitor object are the error monitor of application started on a server system, the monitor of the state of the service started with the server system, and the monitor of an event log. These monitor objects are registered or correction saved at a register.
[0038] After detecting the abnormal termination of each «application after each event happened, a notice to an administrator» (drawing 12), «condition monitoring (start/stop) of service. In order to perform a notice to a check and an administrator» (drawing 11), and «the check of the kind/the contents of the event and a notice to an administrator» (drawing 13), registration to a register or correction preservation is performed.
[0039] Registration sets up about each of the server side and a client side.
[0040] Drawing 16 is a functional description explanatory view about «configuration (server)». In order to perform setting out to a server function for the candidate for the notice of a monitor event, things are registered (by server OS. for example, a field or a file according to an original interface with registry or monitor application, and the like), it saves, it is a kind and the like of event log which performs the event which performs a message transmission point client, a mail address, a mail server, and monitor as shown on the example drawing of the formats F601-F613 of drawing 6 and drawing 7 as an item to specify and detection. (In addition, drawing 6 and drawing 7 are the

example drawings at the time of setting a register as registry).

Drawing 18 is a functional description explanatory view about «configuration (client)».

[0041] Setting out to a client function is performed for a monitor event object, and it is a register (although it changes with OS of a client, it is registry and the like, for example), it saves, it is a path and the like of the application which performs server name as shown on the example drawing of the format F801 of drawing 8, the port NO, and a log display as an item to specify. (In addition, drawing 8 is an example drawing at the time of setting a register as registry).

By using a list (selection) list (see drawing 3, drawing 4, drawing 5) as follows, as a client can choose registration of these monitor events easily, it raises operability.

[0042] First, as selection of monitor object service, as shown on drawing 4, it is possible to choose from a list the service which the list of the service specified on the server is displayed and is supervised.

[0043] As selection of an event log, the classification of an event and an event which serves as a monitor object shown on drawing 5 similarly can be specified.

[0044] The monitor according to source by detailed setting is possible too. For this reason, the source list of application installed on the server can be displayed. The monitor of a fine event log is possible by choosing the source which serves as a monitor object from a list.

For example, the event log information on a monitor object can be chosen in application units and warning level.

[0045] The above information to extract can be freely chosen from warning to audit information. When notifying warning information, only a required portion can be chosen by displaying the application installed in the server as a select list.

[0046] About setting out of a report destination, and setting out of a transmission method, as shown on drawing 3, the report destination of application abnormal termination, service conditions, and event information is set up by «setting out of a transmission destination (report destination)». An output is possible to the client of plurality, thus to a plurality of clients. The setting out of a client can set either of an IP address computer name up, and mail address specification is possible for it too.

[0047] Transmission of the message by TCP/IP and transmission of the message by e-mail are possible for a transmission method. Thus, thus, even if a server manager is where, a server manager can be notified certainly.

[0048] The user who can register is only a client and a server manager with ID recognized preliminary and a password. This can be set up only by a server manager.

[0049] Next, (2) monitoring functions are explained. Drawing 11 is a functional description explanatory view of «service monitor / starting».

[0050] In a drawing, when the service under operation is supervised by a server and the end of service is detected, based on setting out of a register, the end of service is notified to client communications processing (drawing 14) or transmitting mail processing (drawing 15). The service which received start instruction from client communication after receiving service starting information is started.

[0051] Drawing 20 is a flow chart which shows the procedure. It judges whether it judged whether it was service of a monitor object (S203), and the specified time has passed (S204), and a report destination is chosen and (S205) notified (S206 or S207). After the end of a notice, it will return to the beginning (S201) and will be in an event-happened executive state again.

[0052] Timer start of the service monitor is carried out periodically (for example, at intervals of 10 seconds), and it supervises the state of the started service (F608 of drawing 7) in Step S202.

[0053] In Step S203, judgment whether it is monitor object service is performed based on the contents of the register (F606 of drawing 7). That is, it judges according to the contents (flag of whether to supervise) of \SERVICEWATCHER of F606.

[0054] In Step S204, judgment whether the specified time has passed is performed based on the contents of the register (F612 of F601 and drawing 7 of drawing 6).

That is, it judges according to the contents (time to broadcast the same notification message again) of the value name ResendTime of \SERVER of F601, and the contents (last notice time for every service) of \Service of F612.

[0055] Drawing 12 is a functional description explanatory view about an «application monitor».

[0056] In a drawing, when the application under operation detects abnormal termination on a server, based on setting out of a register, the end of service is notified to client communications processing (drawing 14) or transmitting mail processing (drawing 15). The log file created at the time of application abnormal termination is passed to client communications processing (drawing 14) or transmitting mail processing (drawing 15).

[0057] Drawing 21 is a flow chart which shows the procedure. It judges whether it is the application of a monitor object (S212), and a report destination is chosen and (S213) notified (S214 or S215). After the end of a notice, it returns to the beginning (S211) and will be in the state waiting for an event happened again.

[0058] Drawing 13 is a functional description explanatory view about «event log monitor».

[0059] In a drawing, an event log is supervised and the added log is detected. Extraction of the event log information outputted on a server based on setting out of a register carries out, and the contents of the event log are notified to client communications processing (drawing 14) or transmitting mail processing (drawing 15).

[0060] Drawing 22 is a flow chart which shows the procedure. It judged whether it was an event log of a monitor object (S223), and the specified time has passed (S224), and a report destination is chosen and (S225) notified (S226 or S227). After the end of a notice, it will return to the beginning (S221) and will be in an event-happened executive state again.

[0061] Periodically, timer start of the event log monitor is carried out, and it supervises the state of an event log in Step S222 (for example, at intervals of 10 seconds).

[0062] In Step S222, judgment whether it is monitor object service is performed based on the contents of the register (F605 of drawing 6). Namely, the following value \EVENTLOGWATCHER subordinate of F605, (1) APPLICATIONLASTTIME (application log), (2) SECURITYLASTTIME (security log) and (3) SYSTEMLASTTIME (system log), judging according to the contents (the latest event log generation times).

[0063] In Step S223, it is judged whether it is generating of a new event log according to the contents of the register (F602, F603, F604 of drawing 6). That is, it judges according to each contents (flag of whether to supervise for every kind of event) of \APPLICATION (application log) of F602, \SYSTEM of F603, and (system log) \SECURITY (security log) of F604.

[0064] In Step S224, judgment whether the specified time has passed is performed based on the contents of the register (F601 of drawing 6, F609, F610, F611 of drawing 7). Namely, the contents (time to broadcast the same notification message again) of the value name ResendTime of \SERVER of F601, the contents ('a success of audit') of \APPLICATION (application log) of F609, \SECURITY (security log), and \SYSTEM (system log), it judges with the flag of whether to supervise to every 'failure-in audit', 'information', 'warning', and 'error'.

[0065] Next, (3) server client communication function is explained. Drawing 9 shows the data flow about communication between client/servers. The notice of the event generated after activating the mentioned above monitoring function, and the transmission and reception of client side demand information to it are performed.

[0066] The communication between client/servers is processed by getting that the client wished and specified by the notice of client communication or the notice of transmitting mail at a plurality of clients.

[0067] First, drawing 14 is a functional description explanatory view about «a notice of client communication». From each processing of service monitor / starting, an application monitor, and event log monitor, service, and the terminating notice of application and the notice of an event log are received, and a message is transmitted to the server communications processing of a client side. From the server communications processing of a client side, service start instruction is received and it notifies to service monitor / starting processing.

[0068] S205, S206, S207 of drawing 20, S213, S214 and S215 of drawing 21, S225, S226, S227 of drawing 22 are flow charts which show the procedure. These contents of processing are the same. S206 and S207 are explained to be S205 of drawing 20 as a typical example.

[0069] It judges whether the report destination client has started (S205), and a report destination is chosen and notified (S206 or S207).

[0070] In Step S205, judgment whether the report destination client has started is judged by holding the state by connection establishment processing with a client and a server.

[0071] First, when the report destination client has started, namely, connection between a client and a server is established, in Step S206, a report destination client is acquired and notified from a register (F601 of drawing 6). That is, a report destination is acquired from the contents (the client name or IP address of a report destination) of WS_NAMEx (x is the consecutive numbers from 1) of the value name of \SERVER of F601, and it notifies by client communication. An output is possible to a plurality of clients as a report destination.

[0072] When a report destination client has not been started, it notifies by the following second method. Drawing 15 is a functional description explanatory view about this «notice of transmitting mail», and receives service, and the terminating notice of application and the notice of an event log from each processing of service monitor / starting, an application monitor or event log monitor. These notice contents are transmitted to a mail server as an E-mail at the specified address.

[0073] These notice processings of transmitting mail acquire and notify a transmitting mail report destination from a register (F601 of drawing 6) in Step S207. That is, a report destination is acquired from the contents (mail address of a transmission destination) of MAIL_ADDRESSx (x is the consecutive numbers from 1) of the value name of \SERVER of F601, and it is made by giving a transmitting mail notice. An output is possible to a plurality of mail addresses as a report destination.

[0074] The client screen or mail which had the information outputted as mentioned above specified notifies. If a log file is outputted at the time of an error generation, a log file will be copied to the specified client and there will be no necessity of touching a server for information extraction. At the time of transmitting mail, a log file is transmitted as an attached file.

[0075] To the last, they are a notice content to the notice acknowledgement function of (4), namely, a client or a server manager, and a check (client request information). A function is explained.

[0076] Drawing 17 is a functional description explanatory view about «server communication». From a server, «server communication» receives various notification messages and detailed information (drawing 10), and performs a view as popup to the screen of a client. «Server communication» transmits the start instruction of service, and the like to a server according to a client request. Connection establishment processing with a server is performed at the time of the starting connection of a client and a server.

[0077] Drawing 19 is a flow chart which shows the procedure of the task which receives «server communication», namely, the notice of the server of a client side.

[0078] A client is usually a notification message reception waiting state (S191) from a server. According to the notice content (drawing 10), server communication of a client in service monitor intelligence, event log monitor intelligence or application monitor information is judged (S192), end message box display processing of service (S193), event log message box display processing (S194) or application abnormal termination message box display processing (S195) is performed.

A client goes into the first (S191) waiting state after the end of processing of Step S194, Step S195. In the case of end message box display processing of service (S193), when the demands from a client are service reboot directions, reboot directions of service are transmitted to a server (S197). A client returns to the beginning (S191) after the end of processing of Step S197, and goes into the waiting state of notification message reception following server.

[0079] As for a server side, the message transmitted from a client side is transmitted and received on the format shown by drawing 10. Transmission and reception of a message are performed using the protocol of TCP/IP, and all messages are transmitted and received by text format.

[0080] In a server side, the message transmitted from a client side turns into a message of a meaning with a message number. It connects with a message peculiar to a number in order as a message list, and is transmitted to it.

[0081] Explanation about the information display at the time of generating of a monitor event is performed to below.

[0082] First, drawing 23 and drawing 24 show the example of an information display in the case of displaying a message and a log on a client/mail at the time of the abnormal termination of application.

[0083] Drawing 23 is an example of a screen by which an information display is carried out to a client.

The execution module name as for which (1) application-name: abnormal termination carried out display information, (2) server name: abnormal-occurrence server name (or computer name), (3) time: occurrence time, and (4) log storage location: is a storage location of the log file outputted by the debugger. If the button of this display screen is clicked, the label of a log file is possible.

[0084] Drawing 24 is an example of a screen by which an information display is carried out by e-mail. The execution module name as for which (1) application-name: abnormal termination carried out display information, (2) server name: abnormal-occurrence server name (or computer name), (3) time: occurrence time and (4) log file: log file outputted by the debugger. This log file is added as an attached file and is notified.

[0085] Next, drawing 25 and drawing 26 show the example of an information display in the case of carrying out to the specified client or a mail address at the time of a supervisory service stop.

[0086] Drawing 25 is an example of a screen by which an information display is carried out to a client. As display information, (1) service name: a service name that stopped, (2) server name: abnormal occurrence server name (or computer name) and (3) time: Occurrence time. The reboot of the service suspended when the button of this display screen was clicked is possible.

[0087] Drawing 26 is an example of a screen by which an information display is carried out by e-mail. As display information, (1) service name: a service name that stopped, (2) server name: abnormal occurrence server name (or computer name), (3) time: occurrence time. Finally, drawing 27 and drawing 28 show the example of an information display at the time of monitor event generating.

[0088] Drawing 27 is an example of a screen by which an information display is carried out to a client. As display information, (1) event: kind of event that was transmitted, (2) event source: a source name which was outputted to the event log, (3) server name: abnormal occurrence server name (or computer name), (4) time: occurrence time. It is displayed for an event log and the like that details click the button of this display screen.

[0089] Drawing 28 is an example of a screen by which an information display is carried out by e-mail. As display information, (1) event: kind of event that was transmitted, (2) event source: a source name which was outputted to the event log, (3) server name: abnormal occurrence server name (or computer name), (4) time: occurrence time and (5) details: contents outputted by event log. The situation generated in the server on a network system by the above is supervised, and it becomes possible to realize the server monitor which makes it possible to notify the client which had the contents of the detected event specified or a server manager by the specified method, and an operation management system.

[0090] [Effect of the invention] It is possible to notify a client or a server manager of server monitor event information by net communication promptly automatically for server state grasp at the time of the monitor event happened registered into the server. It is possible for this to constitute the effective operation management organization for a server manager and a server user (client).

[0091] The client or server manager who had the monitor event which should be notified with a condition-monitoring event registration-settings function recognized is enabled to be able to register easily the monitor event displayed by a list freely by selection form efficiently. Detailed information (a monitoring function, a log collection function) of the monitor event which should be notified, it makes it possible to be able to register freely by selection form.

[0092] When notifying monitor intelligence on the Internet, a server user can be notified without operation of a server of detailed information by notifying the details of display information of an event as attached materials of the mail.

[0093] Service can be rebooted without operation of a server from a client, without troubling a server manager.

[0094] If the address of a report destination client or the Internet is changed by the ability setting up a report destination and a notifying method freely and change them according to the place of a server manager's going future, the server manager does not need to stick to an administration terminal and does not need to supervise. Since transmission to the cellular phone which can receive E-mail is possible too, if a server manager is in a range which a cellular phone reaches, manager can make it possible to be anywhere.

[Brief description of the drawings]

[Drawing 1] is the block diagram explaining the global function of this invention

[Drawing 2] is the drawing explaining the system configuration of the monitor event information system of this invention

[Drawing 3] is the example drawing of report destination setting out of the notice of a monitor object event

[Drawing 4] is the example drawing of a display of selection (supervisory service) of the notice of a monitor object event

[Drawing 5] is the example drawing of a display of selection (event log) of the notice of a monitor object event

[Drawing 6] is the example drawing (1/2) of the register of monitor configuration (server side)

[Drawing 7] is the example drawing (2/2) of the register of monitor configuration (server side)

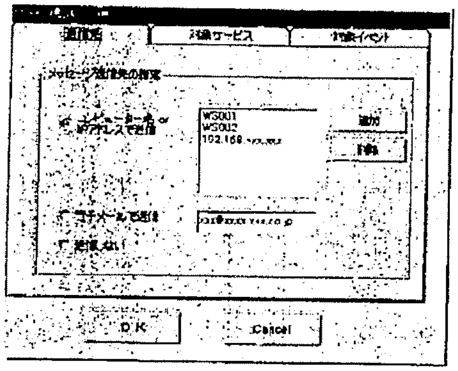
[Drawing 8] is the example drawing of the register of monitor configuration (client side)
[Drawing 9] is the data informing flow chart between client/servers
[Drawing 10] is the notice format drawing of a client
[Drawing 11] is the block diagram explaining service monitor / start function
[Drawing 12] is the block diagram explaining an application monitor function
[Drawing 13] is the block diagram explaining an event log monitoring function
[Drawing 14] is the block diagram explaining a client communication notice function
[Drawing 15] is the block diagram explaining a transmitting mail notice function
[Drawing 16] is the block diagram explaining a configuration (server) function
[Drawing 17] is the block diagram explaining a server communication function
[Drawing 18] is the block diagram explaining a configuration (client) function
[Drawing 19] is the Client: flow chart which illustrates reception for the notice of a server
[Drawing 20] is the flow chart explaining service monitor
[Drawing 21] is the flow chart explaining an application monitor
[Drawing 22] is the flow chart explaining event log monitor

[Drawing 23] is the example drawing of an information display (client communication) at the time of application abnormal termination
[Drawing 24] is the example drawing of an information display (transmitting mail) at the time of application abnormal termination
[Drawing 25] is the example drawing of an information display (client communication) at the time of a service stop
[Drawing 26] is the example drawing of an information display (transmitting mail) at the time of a service stop
[Drawing 27] is the example drawing of an information display (client communication) at the time of an event generation
[Drawing 28] is the example drawing of an information display (transmitting mail) at the time of an event generation

[Description of numerals]

10 Server, 111 Server event registering part
112 Server event monitoring part
113 Server event informing part ,114 Register,
115 Notice content preserving part, 11 Client 1,
111 Client monitor event registering part
112 Client monitor event receiving part
113 Register, 12 Client 2, 121 Mailer
122 Notice mail preserving part
13 The network of a mail communication system
14 The user side server of a mail communication system

Drawing 3


通信先
対象サービス
対象イベント

メッセージ送信先の指定

● コンピューター名 or IPアドレスで送信

WS001
WS002
102.168.xxx.xxx

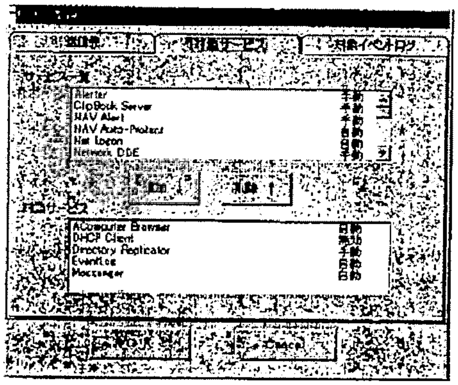
追加
削除

○ Eメールで送信 xxx@xxxx.xxx.co.jp

○ 送信なし

OK
Cancel

Drawing 4


通信先
対象サービス
対象イベントログ

サービス一覧

Alerter	手動
ClipBook Server	手動
NAV Alert	手動
NAV Auto-Protect	自動
Net Logon	自動
Network DDE	手動

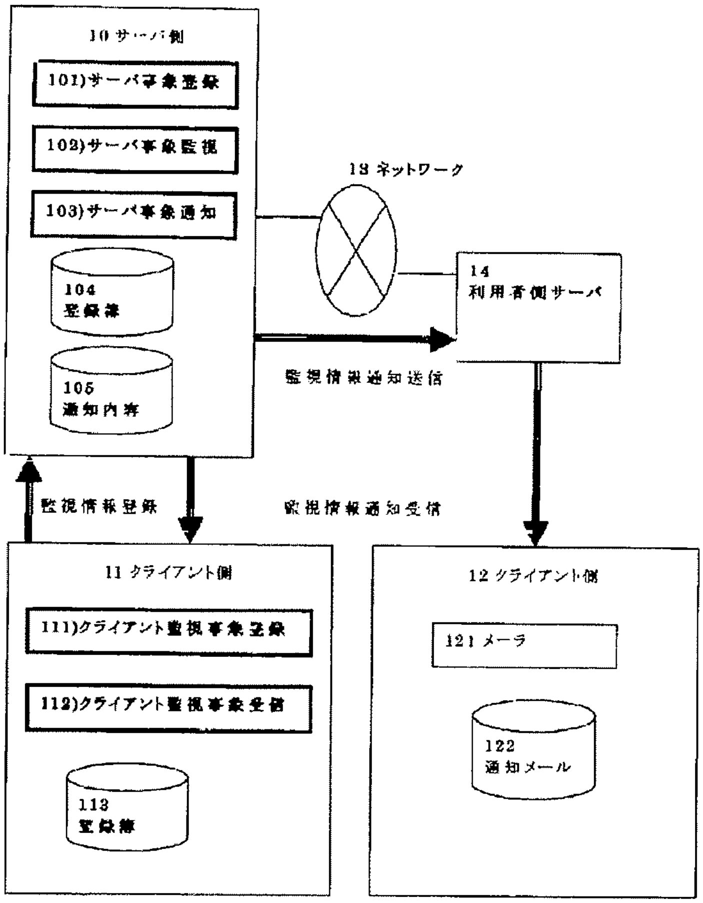
追加 ↓
削除 ↑

対象サービス

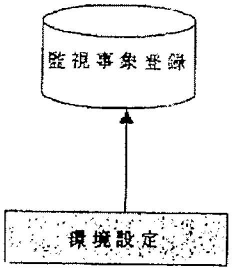
Computer Browser	自動
DHCP Client	無効
Directory Replicator	手動
EventLog	自動
Messenger	自動

OK
Cancel

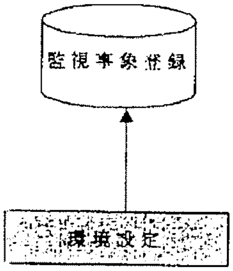
Drawing 1


10 サーバ側
101)サーバ事象登録
102)サーバ事象監視
103)サーバ事象通知
104 登録簿
105 通知内容
13 ネットワーク
14 利用者側サーバ
監視情報通知送信
監視情報登録
監視情報通知受信
11 クライアント側
111)クライアント監視事象登録
112)クライアント監視事象受信
113 登録簿
12 クライアント側
121 メーラ
122 通知メール

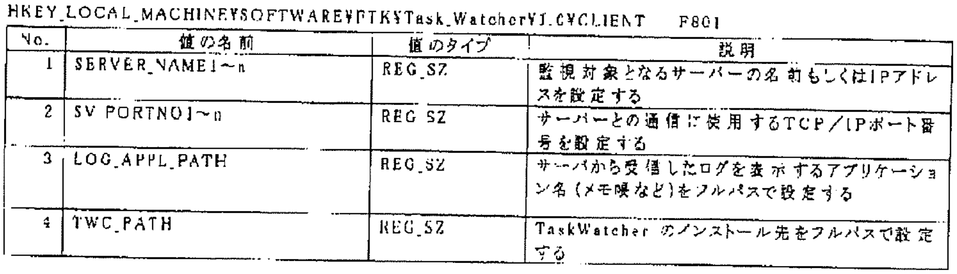
Drawing 16


監視事象登録
環境設定

【図18】


監視事象登録
環境設定

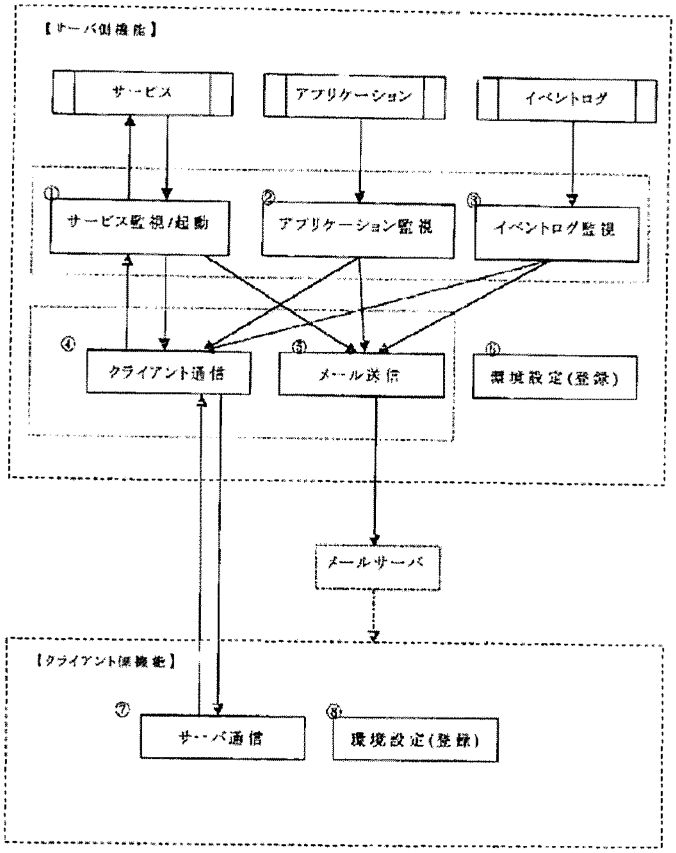
Drawing 8



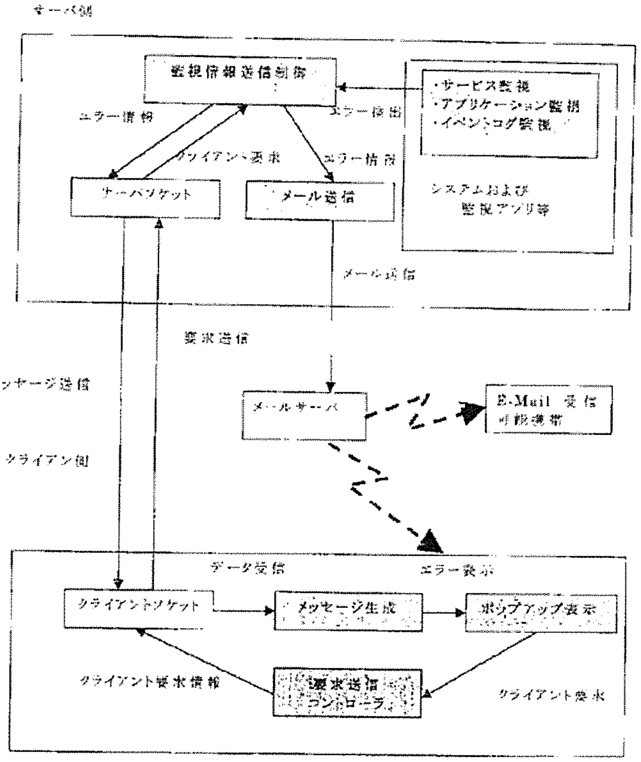
HKEY_LOCAL_MACHINE¥SOFTWARE¥PTK¥Task_Watcher¥1.0¥CLIENT F801

No.	値の名前	値のタイプ	説明
1	SERVER_NAME1～n	REG_SZ	監視対象となるサーバーの名前もしくはIPアドレスを設定する
2	SV PORTNO1～n	REG SZ	サーバーとの通信に使用するTCP／IPポート番号を設定する
3	LOG_APPL_PATH	REG_SZ	サーバから受信したログを表示するアプリケーション名（メモ帳など）をフルパスで設定する
4	TWC_PATH	REG_SZ	TaskWatcher のインストール先をフルパスで設定する

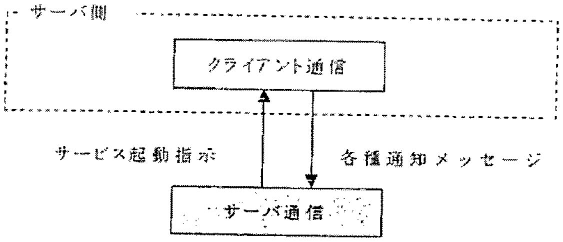
Drawing 2


【サーバ側機能】
サービス
アプリケーション
イベントログ
①
サービス監視/起動
②
アプリケーション監視
③
イベントログ監視
④
クライアント通信
⑤
メール送信
⑥
環境設定（登録）
メールサーバ
【クライアント側機能】
⑦
サーバ通信
⑧
環境設定（登録）

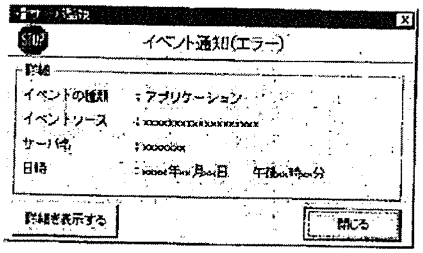
Drawing 9


サーバ側
監視情報送信制御
エラー情報
クライアント要求
エラー検出
エラー情報
・サービス監視
・アプリケーション監視
・イベントログ監視
システムおよび
監視アプリ等
サーバソケット
メール送信
メール送信
要求送信
メッセージ送信
クライアント側
メールサーバ
E-Mail 受信
可能携帯
データ受信
エラー表示
クライアントソケット
メッセージ生成
ポップアップ表示
クライアント要求情報
要求送信
コントローラ
クライアント要求

Drawing 17

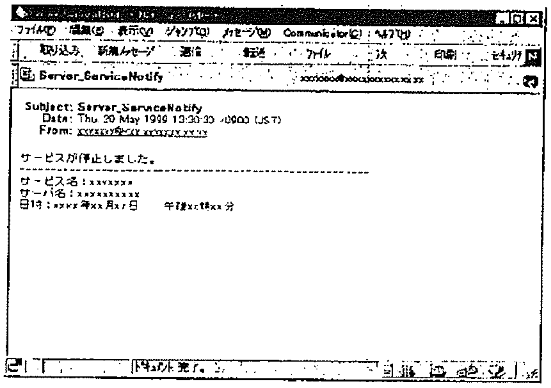

サーバ側
クライアント通信
サービス起動指示
各種通知メッセージ
サーバ通信

Drawing 27


STOP
イベント通知(エラー)
詳細
詳細を表示する
閉じる

イベントの種類 : アプリケーション
イベントソース : xxxxxxxxxxxxxxxxxx
サーバ名 : xxxxxxxx
日時 : xxxx年xx月xx日 午後xx時xx分

Drawing 26

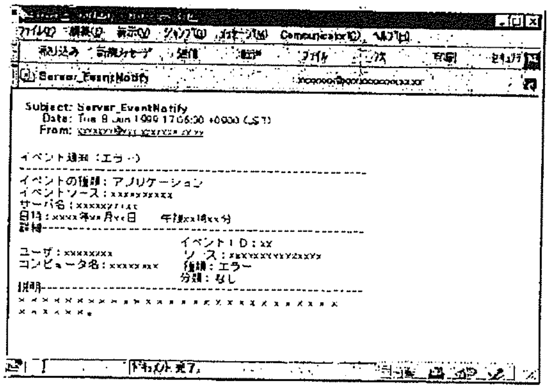

ファイル(F) 編集(E) 表示(V) ジャンプ(G) メッセージ(M) Communicator(C) ヘルプ(H)
取り込み 新規メッセージ 返信 転送 ファイル 次 印刷 セキュリティ
Server_ServiceNotify
ドキュメント完了。

Subject: Server_ServiceNotify
Date: Thu 20 May 1999 13:30:30 +0900 (JST)
From: xxxxxx@xxx.xxxxx.xx.xx

サービスが停止しました。

サービス名：xxxxxxx
サーバ名：xxxxxxxxxx
日時：xxxx年xx月xx日　午後xx時xx分

Drawing 28

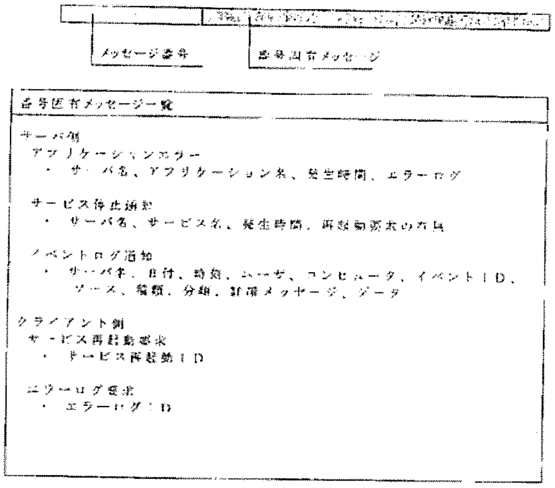

ファイル(F) 編集(E) 表示(V) ジャンプ(G) メッセージ(M) Communicator(C) ヘルプ(H)
取り込み 新規メッセージ 返信 転送 ファイル 次 印刷 セキュリティ
Server_EventNotify
ドキュメント完了。

Subject: Server_EventNotify
Date: Tue 8 Jun 1999 17:06:30 +0900 (JST)
From: xxxxxx@xxx.xxxxx.xx.xx

イベント通知（エラー）

イベントの種類：アプリケーション
イベントソース：xxxxxxxxxx
サーバ名：xxxxxxxxx
日時：xxxx年xx月xx日　午後xx時xx分
詳細
イベントID：xx
ユーザ：xxxxxxxx　ソース：xxxxxxxxxxxxxx
コンピュータ名：xxxxxxxx　種類：エラー
分類：なし
説明
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxx。

Drawing 10


メッセージ番号
番号固有メッセージ

番号固有メッセージ一覧

サーバ側
アプリケーションエラー
- サーバ名、アプリケーション名、発生時間、エラーログ

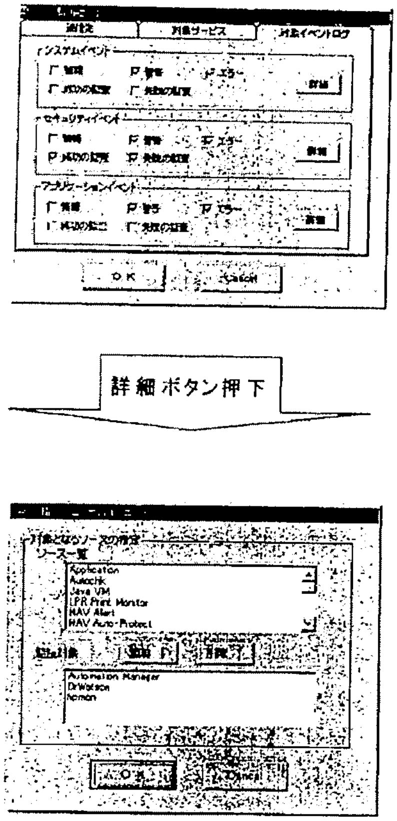
サービス停止通知
- サーバ名、サービス名、発生時間、再起動要求の有無

イベントログ通知
- サーバ名、日付、時刻、ユーザ、コンピュータ、イベントID、ソース、種類、分類、詳細メッセージ、データ

クライアント側
サービス再起動要求
- サービス再起動ID

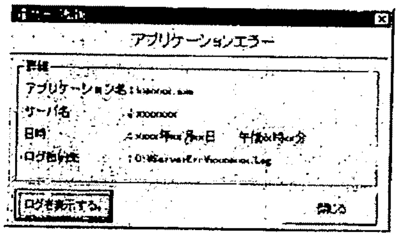
エラーログ要求
- エラーログID

Drawing 5

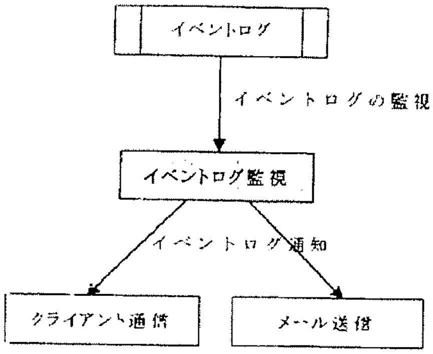

対象サービス
対象イベントログ
システムイベント
セキュリティイベント
アプリケーションイベント
エラー
詳細
OK
Cancel
詳細ボタン押下
ソース一覧
Application
Autochk
Java VM
LPR Print Monitor
NAV Alert
NAV Auto-Protect
Automation Manager
DrWatson
hemon
OK
Cancel

Drawing 23

図２３】

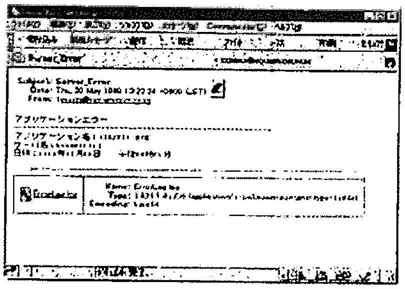

アプリケーションエラー
ログを表示する。
閉じる

Drawing 13


イベントログ
イベントログの監視
イベントログ監視
イベントログ通知
クライアント通信
メール送信

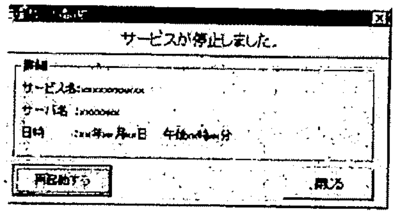
Drawing 24

２４】

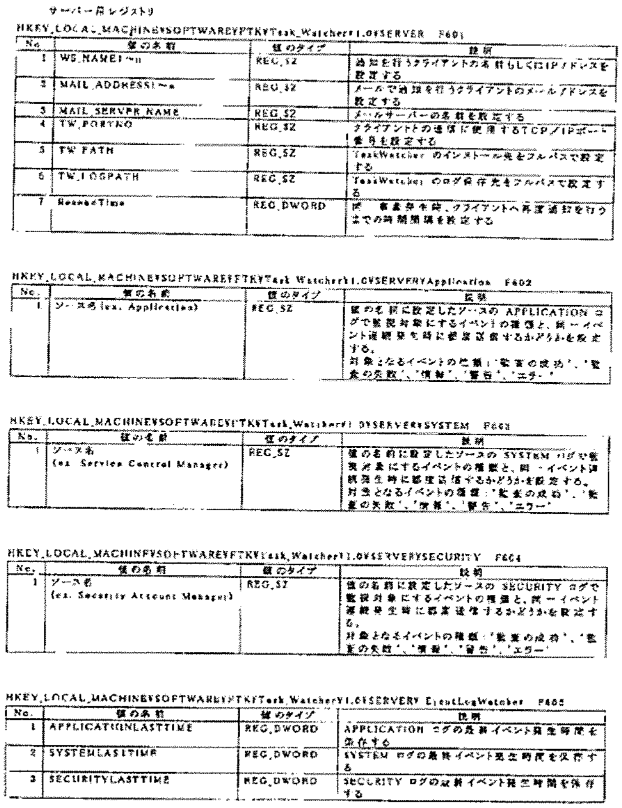

アプリケーションエラー

Drawing 25

図２５】


サービスが停止しました。
再起動する
閉じる

Drawing 6



サーバー用レジストリ

HKEY_LOCAL_MACHINE¥SOFTWARE¥FTK¥Task_Watcher¥1.0¥SERVER　F601

No	値の名前	値のタイプ	説明
1	WS_NAME1~n	REG_SZ	通知を行うクライアント名前もしくはIPアドレスを設定する
2	MAIL_ADDRESS1~n	REG_SZ	メールで通知を行うクライアントのメールアドレスを設定する
3	MAIL_SERVER_NAME	REG_SZ	メールサーバーの名前を設定する
4	TW_PORTNO	REG_SZ	クライアントとの通信に使用するTCP/IPポート番号を設定する
5	TW_PATH	REG_SZ	TaskWatcher のインストール先をフルパスで設定する
6	TW_LOGPATH	REG_SZ	TaskWatcher のログ保存先をフルパスで設定する
7	ResendTime	REG_DWORD	例　障害発生時、クライアントへ再度通知を行うまでの時間間隔を設定する

HKEY_LOCAL_MACHINE¥SOFTWARE¥FTK¥Task_Watcher¥1.0¥SERVER¥Application　F602

No.	値の名前	値のタイプ	説明
1	ソース名(ex. Application)	REG_SZ	値の名前に設定したソースの APPLICATION ログで監視対象にするイベントの種類と、同一イベント連続発生時に都度通信するかどうかを設定する。 対象となるイベントの種類：'監査の成功'、'監査の失敗'、'情報'、'警告'、'エラー'

HKEY_LOCAL_MACHINE¥SOFTWARE¥FTK¥Task_Watcher¥1.0¥SERVER¥SYSTEM　F603

No.	値の名前	値のタイプ	説明
1	ソース名 (ex. Service Control Manager)	REG_SZ	値の名前に設定したソースの SYSTEM ログで監視対象にするイベントの種類と、同一イベント連続発生時に都度通信するかどうかを設定する。 対象となるイベントの種類：'監査の成功'、'監査の失敗'、'情報'、'警告'、'エラー'

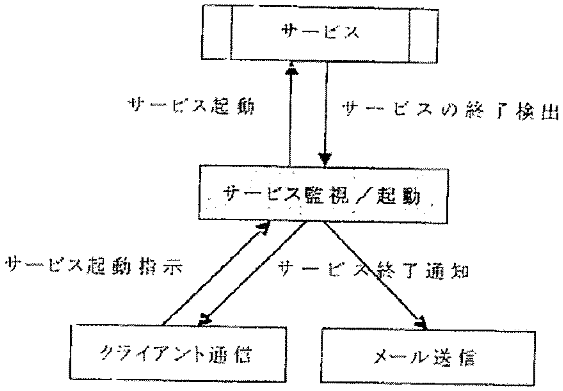
HKEY_LOCAL_MACHINE¥SOFTWARE¥FTK¥Task_Watcher¥1.0¥SERVER¥SECURITY　F604

No.	値の名前	値のタイプ	説明
1	ソース名 (ex. Security Account Manager)	REG_SZ	値の名前に設定したソースの SECURITY ログで監視対象にするイベントの種類と、同一イベント連続発生時に都度通信するかどうかを設定する。 対象となるイベントの種類：'監査の成功'、'監査の失敗'、'情報'、'警告'、'エラー'

HKEY_LOCAL_MACHINE¥SOFTWARE¥FTK¥Task_Watcher¥1.0¥SERVER¥EventLogWatcher　F605

No.	値の名前	値のタイプ	説明
1	APPLICATIONLASTTIME	REG_DWORD	APPLICATION ログの最終イベント発生時間を保存する
2	SYSTEMLASTTIME	REG_DWORD	SYSTEM ログの最終イベント発生時間を保存する
3	SECURITYLASTTIME	REG_DWORD	SECURITY ログの最終イベント発生時間を保存する

Drawing 11



Drawing 7

HKEY_LOCAL_MACHINE¥SOFTWARE¥PTK¥Task_Watcher¥1.0¥SERVER¥SERVICEWATCHER F606

No.	値の名前	値のタイプ	説明
1	サービスの内部名(ex. Alerter)	REG_SZ	値の名前に設定したサービスの監視を行うかどうかを設定する

HKEY_LOCAL_MACHINE¥SOFTWARE¥PTK¥Task_Watcher¥1.0¥SERVER¥DEBUGGER F607

No.	値の名前	値のタイプ	説明
1	DEBUGGER	REG_DWORD	TASKWATCHER で使用するデバッガーをフルパスで設定する

HKEY_LOCAL_MACHINE¥SOFTWARE¥PTK¥Task_Watcher¥1.0¥SERVER¥STARTDATA F608

No.	値の名前	値のタイプ	説明
1	サービスの内部名(ex. Alerter)	REG_DWORD	値の名前に設定したソースの起動タイプを設定する 0x2:自動起動, 0x3:手動起動, 0x4:無効

HKEY_LOCAL_MACHINE¥SOFTWARE¥PTK¥Task_Watcher¥1.0¥SERVER¥HISTORY¥EVENTLOG
¥APPLICATION F609

No.	サブキー	値の名前	値のタイプ	説明
1	サービスの内部名	イベントID	REG_DWORD	サブキーに設定したサービスでイベントごとにクライアントへの APPLICATION ログ最新通知時刻を保存する

HKEY_LOCAL_MACHINE¥SOFTWARE¥PTK¥Task_Watcher¥1.0¥SERVER¥HISTORY¥EVENTLOG
¥SYSTEM F610

No.	サブキー	値の名前	値のタイプ	説明
1	サービスの内部名	イベントID	REG_DWORD	サブキーに設定したサービスでイベントごとにクライアントへの SYSTEM ログ最新通知時刻を保存する

HKEY_LOCAL_MACHINE¥SOFTWARE¥PTK¥Task_Watcher¥1.0¥SERVER¥HISTORY¥EVENTLOG
¥SECURITY F611

No.	サブキー	値の名前	値のタイプ	説明
1	サービスの内部名	イベントID	REG_DWORD	サブキーに設定したサービスでイベントごとにクライアントへの SECURITY ログ最新通知時刻を保存する

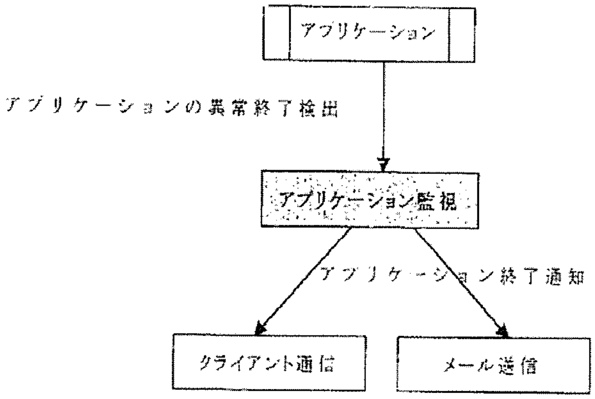
HKEY_LOCAL_MACHINE¥SOFTWARE¥PTK¥Task_Watcher¥1.0¥SERVER¥HISTORY¥SERVICE F612

No.	値の名前	値のタイプ	説明
1	サービスの内部名+H(ex. MessangerH)	REG_DWORD	値の名前に設定したサービスのクライアントへの最新通知時刻を保存する, 64Bit値の上位32Bitを保存する。
2	サービスの内部名+H(ex. MessangerL)	REG_DWORD	値の名前に設定したサービスのクライアントへの最新通知時刻を保存する, 64Bit値の下位32Bitを保存する。

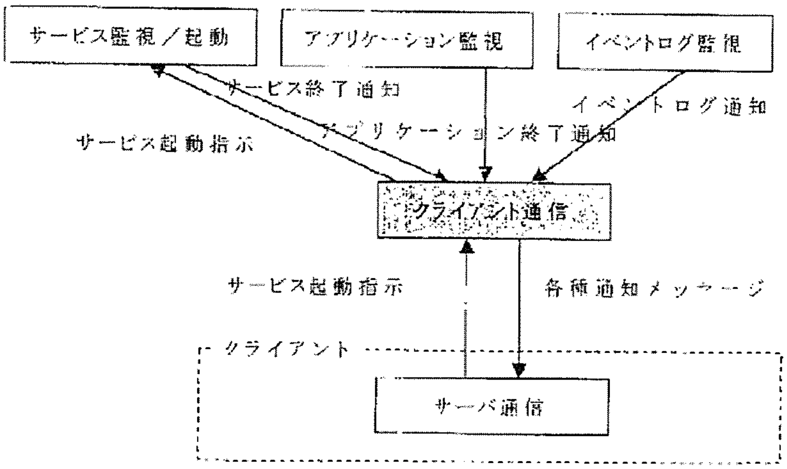
キー HKEY_LOCAL_MACHINE¥SOFTWARE¥PTK¥Task_Watcher¥1.0¥SERVER¥SenderOption F613

No.	値の名前	値のタイプ	説明
1	ALIASNAME	REG_SZ	クライアントへの通知に使用するサーバーの別名を設定する

Drawing 12

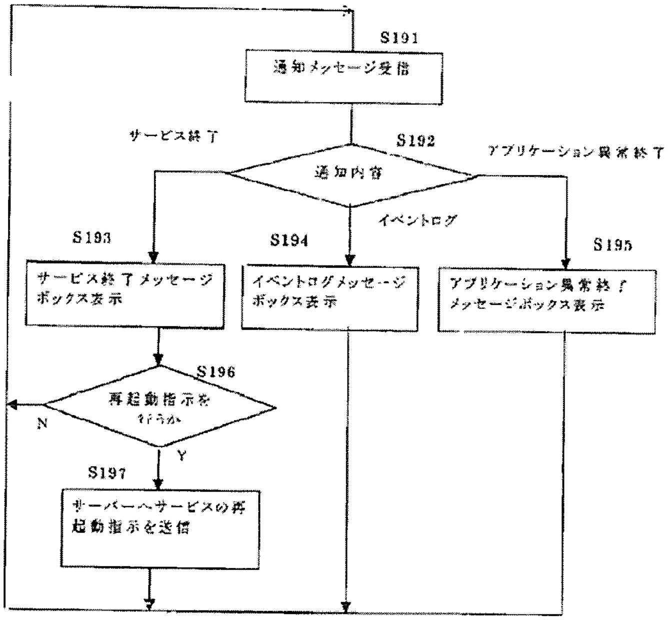


Drawing 14



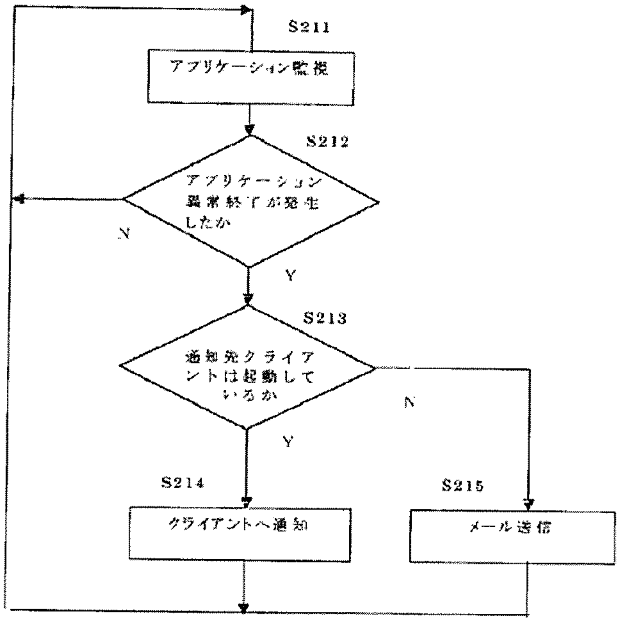
サービス監視／起動
アプリケーション監視
イベントログ監視
サービス終了通知
サービス起動指示
アプリケーション終了通知
イベントログ通知
クライアント通信
サービス起動指示
各種通知メッセージ
クライアント
サーバ通信

Drawing 19

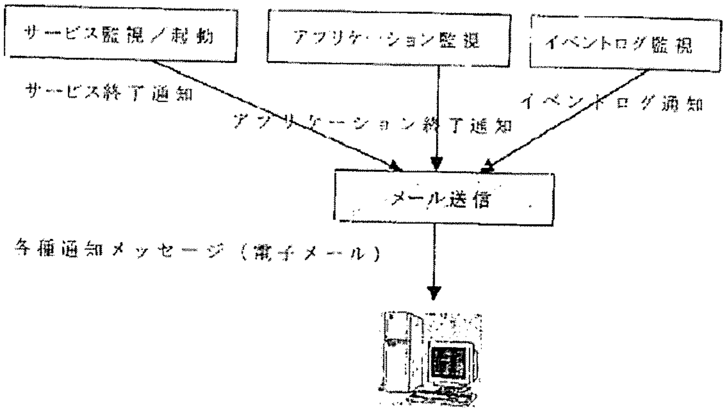


S191
通知メッセージ受信
S192
通知内容
サービス終了
アプリケーション異常終了
イベントログ
S193
サービス終了メッセージボックス表示
S194
イベントログメッセージボックス表示
S195
アプリケーション異常終了メッセージボックス表示
S196
再起動指示を行うか
N
Y
S197
サーバーへサービスの再起動指示を送信

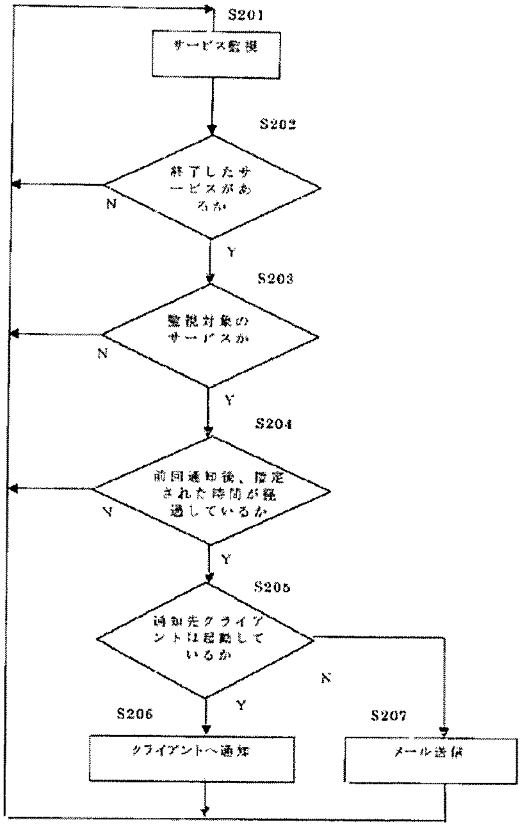
Drawing 21


S211
アプリケーション監視
S212
アプリケーション異常終了が発生したか
N
Y
S213
通知先クライアントは起動しているか
N
Y
S214
クライアントへ通知
S215
メール送信

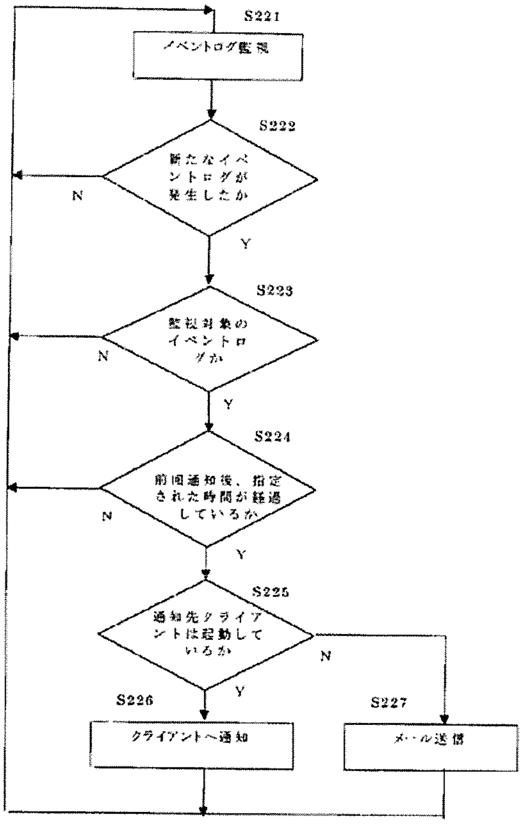
Drawing 15


サービス監視／制御
アプリケーション監視
イベントログ監視
サービス終了通知
アプリケーション終了通知
イベントログ通知
メール送信
各種通知メッセージ（電子メール）

Drawing 20


S201
サービス監視
S202
終了したサービスがあるか
N
Y
S203
監視対象のサービスか
N
Y
S204
前回通知後、指定された時間が経過しているか
N
Y
S205
通知先クライアントは起動しているか
N
Y
S206
クライアントへ通知
S207
メール送信

Drawing 22


S221
イベントログ監視
S222
新たなイベントログが発生したか
N
Y
S223
監視対象のイベントログか
N
Y
S224
前回通知後、指定された時間が経過しているか
N
Y
S225
通知先クライアントは起動しているか
N
Y
S226
クライアントへ通知
S227
メール送信